



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office

**NOTICE OF ALLOWANCE AND ISSUE FEE DUE**

IM51/0811

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APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
08/118,475	09/07/93	004	DEL COTTO, G.	1751 08/11/98
First Named Applicant AFZALI ARDAKANI, ALI				

TITLE OF INVENTION  
ELECTRICALLY CONDUCTIVE POLYMERIC MATERIALS AND USE THEREOF

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
1	IBM109A	252-500.000	H59	UTILITY	NO	\$1320.00 11/12/98

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED.**

**THE ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.**

**HOW TO RESPOND TO THIS NOTICE:**

**I. Review the SMALL ENTITY status shown above.**

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is changed, pay twice the amount of the FEE DUE shown above and notify the Patent and Trademark Office of the change in status, or
- B. If the status is the same, pay the FEE DUE shown above.

If the SMALL ENTITY is shown as NO:

- A. Pay FEE DUE shown above, or
- B. File verified statement of Small Entity Status before, or with, payment of 1/2 the FEE DUE shown above.

**II. Part B-Issue Fee Transmittal should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE. Even if the ISSUE FEE has already been paid by charge to deposit account, Part B Issue Fee Transmittal should be completed and returned. If you are charging the ISSUE FEE to your deposit account, section "4b" of Part B-Issue Fee Transmittal should be completed and an extra copy of the form should be submitted.**

**III. All communications regarding this application must give application number and batch number. Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.**

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

PATENT AND TRADEMARK OFFICE COPY

# Notice of Allowability

Application No.  
08/118,475

Applicant(s)  
Afzali-Ardakani et al

Examiner  
Greg Del Cotto

Group Art Unit  
1751



All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

☒ This communication is responsive to Amend. filed 7/20/98

☒ The allowed claim(s) is/are 87, 88, 91, 92 renumbered 1-4

☐ The drawings filed on \_\_\_\_\_ are acceptable.

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE **THREE MONTHS** FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☒ Applicant MUST submit NEW FORMAL DRAWINGS

☐ because the originally filed drawings were declared by applicant to be informal.

☒ including changes required by the Notice of Draftsperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. 4.

☐ including changes required by the proposed drawing correction filed on \_\_\_\_\_, which has been approved by the examiner.

☐ including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

## Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

☒ Interview Summary, PTO-413

☒ Examiner's Amendment/Comment

☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

☒ Examiner's Statement of Reasons for Allowance

Art Unit:

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Thomas A. Beck on July 30, 1998.

2. The application has been amended as follows:

**The Claims:**

In claim ~~87~~, line 2, delete [89] and insert - 91 -.

In claim 88, line ~~2~~, delete [84] and insert - 92 -.

**Cancel** claims ~~61~~, ~~70~~ and ~~71~~.

 **Insert Abstract** following the last claim:

Art Unit:

### **Abstract**

This invention is concerned with an electrically conductive polymer blend composition which is a liquid compatible blend, comprising a doped product formed from blending a first solution comprising a Lewis base electrically conductive polymer in undoped form in a first organic solvent with a second solution comprising a Lewis acid polymer dopant in a second organic solvent, wherein said Lewis acid polymer dopant dopes said Lewis base electrically conductive polymer in undoped form to obtain said electrically conductive polymer blend, the resulting doped conductive product being soluble in the combination of said first and said second organic solvents and mixcible at the molecular level.

Art Unit:

### REASONS FOR ALLOWANCE

3. The following is an examiner's statement of reasons for allowance: Of the references of record, the most pertinent are Jen et al (US 5,068,060) or Sakai et al (US 4,933,106).

Sakai discloses an electrically conductive composition, and method of making such, comprising a conductive polymer and a polymer dopant, which can be the same as those presently claimed. See columns 2 and 3. For example, Sakai teaches polypyrrole and polythiophene as polymers and teaches polyacrylic acid, polysulfonic acids, acids containing carboxylic groups, polyphosphoric acid, etc. as dopants. The conductive polymer can be produced by electrochemical polymerization of the monomers or the derivatives thereof with or without the comonomers to deposit in the form of film on an electrode or by chemical polymerization. When the chemical polymerization is performed, the resulting powdery product can be electrochemically doped by first compression-molding the product to pelletize, providing a lead on the pellet and then subjecting the pellet to electrochemical doping. See column 3, lines 8-20.

However, Sakai et al does not teach method of making a liquid electrically conductive polymer blend composition which is formed from blending a solution comprising an electrically conducting polymer in undoped form with a second solution comprising a polymer dopant as recited by the instant claims.

Jen discloses an electrically conductive composition, and a method of making such, comprising a polymer (heterocyclic vinylene) and a polymer dopant. The dopant can be polyacrylic acid and those containing carboxylic acid or sulfonic acid groups. See abstract and

Art Unit:

column 14, lines 57-65. The electrically conductive forms of the polymers are formed by doping corresponding neutral forms of the polymer in solution or in solid state. See column 14, lines 21-30. The solvent type employed can vary widely, from polar to nonpolar. See column 15, lines 20-55. The proportion of polymer and solvent in the solution are not critical and can vary widely. The solution of this invention may include a third essential ingredient which is an electron dopant solute. The purpose of the dopant is to dope the polymer and render it electrically conductive in solution. See column 16, lines 58-69. The method of forming the solutions of this invention is not critical and can vary widely. One preferred method of forming the present solution containing the doped homopolymer or copolymer is to form the dopant solute from part of the solvent either in the presence of the polymer solute or followed by addition of polymer solute. See column 17, line 62 to column 18, line 40.

However, Jen does not teach the specific polymer dopants used in the conductive polymer blend composition as recited by the instant claims.

Additionally, Applicant has provided by way of a videotape, evidence showing that when polyaniline mixed with a solvent and polyamic acid mixed with a solvent are mixed together, a solution forms containing conductive polyaniline doped with polyamic acid.

None of the references of record, alone or in combination, teach or a method of preparing a liquid electrically conductive polymer blend composition which is a liquid compatible blend, comprising a doped product formed from blending a first solution comprising an electrically conductive polymer in undoped form and a second solution comprising a specific polymer dopant,

Art Unit:


the resulting conductive polymer blend being soluble in organic solvent as recited by the instant claims.

Accordingly, since the prior art fails to teach or suggest such a process as recited by the instant claims, the instant claims must be allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory R. Del Cotto whose telephone number is (703) 308-2519.

GRD  
August 10, 1998

  
Paul Lieberman  
Supervisory Patent Examiner  
Technology Center 1700